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10/798,270	03/12/2004	Chang-yeob Choo	1793.1168	5868

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EXAMINER	
GIESY, ADAM	

ART UNIT	PAPER NUMBER
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/798,270	CHOO ET AL.	
	Examiner	Art Unit	
	ADAM R. GIESY	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,8-12,16-19,22-27 and 30-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,8-12,16-19,22-27 and 30-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 9-12, 17-19, 25-27, and 33-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohta (US Doc. No. 2002/0114243A1).

Regarding claim 1, Ohta discloses a method of recording data, the method comprising: recording the data on an optical disc that is rotating at a predetermined constant angular velocity (page 2, paragraphs 0043-0044 – Examiner notes that this rotation speed is inherently CAV, although not specifically disclosed since the apparatus is solving the same problem as the current invention; see also page 5, paragraph 0109); determining whether a data recording error occurs due to a defect of the optical disc (see abstract); and if it is determined that the data recording error has occurred, rotating the optical disc at an adjusted constant angular velocity which is lower than the predetermined constant angular velocity, and recording the data on the optical disc that is rotating at the adjusted constant angular velocity, wherein the adjusted constant angular velocity is one step or two steps lower than the predetermined constant angular velocity, according to an extent of the data recording error (see abstract; see also Figures 3A and 3B).

Regarding claim 2, Ohta discloses all of the limitations of claim 1 as discussed in the claim 1 rejection above and further that the method comprises determining whether the data recording error occurs while the optical disc is rotated at the adjusted constant angular velocity, and if the data recording error is determined to exist, rotating the optical disk at a constant angular velocity that is lower than the adjusted constant angular velocity, and recording the data on the optical disc (see abstract; see also Figures 3A and 3B – Examiner notes that this is simply a loop of the method steps recited in claim 1).

Regarding claim 3, Ohta discloses all of the limitations of claim 2 as discussed in the claim 2 rejection above and further that the method comprises repeatedly determining whether the data recording error occurs while the optical disk is rotating (see abstract; see also Figures 3A and 3B – Examiner notes that this is simply a loop of the method steps recited in claim 1).

Regarding claim 4, Ohta discloses all of the limitations of claim 3 as discussed in the claim 3 rejection above and further that the method comprises rotating the optical disc at a lower constant angular velocity whenever the data recording error is detected (see abstract).

Regarding claim 9, Ohta discloses a method of reproducing data, the method comprising: reproducing the data from an optical disc that is rotating at a predetermined constant angular velocity (page 2, paragraphs 0043-0044 – Examiner notes that this rotation speed is inherently CAV, although not specifically disclosed since the apparatus is solving the same problem as the current invention; see also page 5, paragraph 0109);

determining whether a data reproduction error occurs due to a defect of the optical disc (see abstract); and if it is determined that the data reproduction error has occurred, rotating the optical disc at an adjusted constant angular velocity which is lower than the predetermined constant angular velocity, and reproducing the data from the optical disc, wherein the adjusted constant angular velocity is one step or two steps lower than the predetermined constant angular velocity, according to an extent of the data recording error (see abstract; see also Figures 3A and 3B).

Regarding claim 10, Ohta discloses all of the limitations of claim 9 as discussed in the claim 9 rejection above and further that the method comprises determining whether a data reproduction error occurs while the optical disc is rotated at the adjusted constant angular velocity, and if the data reproduction error is determined to exist, rotating the optical disc at a constant angular velocity which is lower than the adjusted angular velocity, and reproducing the data from the optical disc (see abstract; see also Figures 3A and 3B – Examiner notes that this is simply a loop of the method steps recited in claim 1).

Regarding claim 11, Ohta discloses all of the limitations of claim 9 as discussed in the claim 9 rejection above and further that the method comprises repeatedly determining whether the data reproduction error occurs while the optical disk is rotating (see abstract; see also Figures 3A and 3B – Examiner notes that this is simply a loop of the method steps recited in claim 1).

Regarding claim 12, Ohta discloses all of the limitations of claim 11 as discussed in the claim 11 rejection above and further that the method comprises rotating the

optical disc at a lower constant angular velocity whenever the data reproduction error is detected (see abstract).

Regarding claim 17, Ohta discloses an apparatus for recording data, the apparatus comprising: a motor driver which controls a motor which rotates an optical disc at a constant angular velocity (Figure 1, element 23); an optical pickup which irradiates light onto the optical disc, detects the light reflected from the optical disc, and outputs a radio frequency signal corresponding to the reflected light (3); a radio frequency signal processor which, in response to the radio frequency signal, generates and outputs a recording error signal that indicates whether a data recording error occurs (40); and a controller which, in response to the recording error signal, determines whether the data recording error occurs, and if it is determined that the data recording error has occurred, controls the motor driver to rotate the optical disc at an adjusted constant angular velocity which is lower than a predetermined constant angular velocity, wherein the adjusted constant angular velocity is one step or two steps lower than the predetermined constant angular velocity, according to an extent of the data recording error, and wherein the controller determines whether the data recording error occurs due to a defect of the optical disc (9 and 51).

Regarding claim 18, Ohta discloses all of the limitations of claim 17 as discussed in the claim 17 rejection above and further that the controller controls the motor driver to lower the constant angular velocity at which the optical disk is rotated until the data recording error does not occur (see abstract).

Regarding claim 19, Ohta discloses all of the limitations of claim 18 as discussed in the claim 18 rejection above and further that if it is determined that the data recording error has occurred, the controller controls the motor driver to rotate the optical disc at the adjusted constant angular velocity which is one step lower than the predetermined constant angular velocity (see abstract; see also Figures 3A and 3B).

Regarding claim 25, Ohta discloses an apparatus for reproducing data, the apparatus comprising: a motor driver which controls a motor which rotates an optical disc at a constant angular velocity (Figure 1, element 23); an optical pickup which irradiates light onto the optical disc, detects the light reflected from the optical disc, and outputs a radio frequency signal corresponding to the reflected light (3); a radio frequency signal processor which, in response to the radio frequency signal, generates and outputs a reproduction error signal that indicates whether a data reproduction error occurs (40); and a controller which, in response to the reproduction error signal, determines whether the data reproduction error occurs, and if it is determined that the data reproduction error has occurred, controls the motor driver to rotate the optical disc at an adjusted constant angular velocity which is lower than a predetermined constant angular velocity, wherein the adjusted constant angular velocity is one step or two steps lower than the predetermined constant angular velocity, according to an extent of the data recording error, and wherein the controller determines whether the data recording error occurs due to a defect of the optical disc (9 and 51).

Regarding claim 26, Ohta discloses all of the limitations of claim 25 as discussed in the claim 25 rejection above and further that the controller controls the motor driver to

lower the constant angular velocity at which the optical disc is rotated until the data reproduction error does not occur (see abstract).

Regarding claim 27, Ohta discloses all of the limitations of claim 26 as discussed in the claim 26 rejection above and further that if it is determined that the data reproduction error has occurred, the controller controls the motor driver to rotate the optical disc at the adjusted constant angular velocity which is one step lower than the predetermined constant angular velocity (see abstract; see also Figures 3A and 3B).

Regarding claim 33, Ohta discloses a method of recording and/or reproducing data, the method comprising: at least one of: recording the data on an optical disc that is rotating at a predetermined constant angular velocity, and reproducing the data from an optical disc that is rotating at a predetermined constant angular velocity (page 1, paragraphs 0004 and 0005); determining whether at least one of a data recording error or a data reproduction error occurs due to a defect of the optical disc (see abstract); if it is determined that the data recording error has occurred, rotating the optical disc at an adjusted constant angular velocity which is lower than the predetermined constant angular velocity, and recording the data on the optical disc that is rotating at the adjusted constant angular velocity (see abstract); and if it is determined that the data reproduction error has occurred, rotating the optical disc at an adjusted constant angular velocity which is lower than the predetermined constant angular velocity, and reproducing the data from the optical disc that is rotating at the adjusted constant angular velocity, wherein the adjusted constant angular velocity is one step or two steps

lower than the predetermined constant angular velocity, according to an extent of the data recording error (see abstract; see also Figures 3A and 3B).

Regarding claim 34, Ohta discloses all of the limitations of claim 33 as discussed in the claim 33 rejection above and further that the method comprises determining whether at least one of the data recording error or the data reproduction error occurs while the optical disc is rotated at the adjusted constant angular velocity; if the data recording error is determined to exist, rotating the optical disk at a constant angular velocity that is lower than the adjusted constant angular velocity, and recording the data on the optical disc; and if the data reproducing error is determined to exist, rotating the optical disk at a constant angular velocity that is lower than the adjusted constant angular velocity, and reproducing the data from the optical disc (see abstract; see also Figures 3A and 3B).

Regarding claim 35, Ohta discloses all of the limitations of claim 34 as discussed in the claim 34 rejection above and further that the method comprises repeatedly determining whether at least one of the data recording error or the data reproducing error occurs while the optical disk is rotating (see abstract).

Regarding claim 36, Ohta discloses all of the limitations of claim 35 as discussed in the claim 35 rejection above and further that the method comprises rotating the optical disc at a lower constant angular velocity whenever at least one of the data recording error or the data reproducing error is detected (see abstract; see also Figures 3A and 3B).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 8, 16, 22-24, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta (US Doc. No. 2002/0114243A1) in view of Choi et al. (hereinafter Choi – 7,092,334 B2).

Regarding claim 8, Ohta discloses all of the limitations of claim 1 as discussed in the claim 1 rejection above. Ohta does not directly disclose that the determining of the defect in the disc comes from a tracking error, focus error, or ATIP sync signal.

Choi discloses determining whether the data recoding error occurs due to the defect of the optical disc using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal (see Figure 2, element S50 – note the clear use of the ATIP signal for the error detection; see also Figure 6, element S121 – note the clear use of the FE and TE signals in the error detection).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recording device as disclosed by Ohta with the defective area detecting method as disclosed by Choi, the motivation being to be able to tell whether a recording error occurred because of a buffer under-run or a defective area on the optical disc.

Regarding claim 16, Ohta discloses all of the limitations of claim 9 as discussed in the claim 9 rejection above. Ohta does not directly disclose that the determining of the defect in the disc comes from a tracking error, focus error, or ATIP sync signal.

Choi discloses determining whether the data recoding error occurs due to the defect of the optical disc using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal (see Figure 2, element S50 – note the clear use of the ATIP signal for the error detection; see also Figure 6, element S121 – note the clear use of the FE and TE signals in the error detection).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recording device as disclosed by Ohta with the defective area detecting method as disclosed by Choi, the motivation being to be able to tell whether a recording error occurred because of a buffer under-run or a defective area on the optical disc.

Regarding claim 22, Ohta discloses all of the limitations of claim 17 as discussed in the claim 17 rejection above. Ohta does not directly disclose that the determining of the defect in the disc comes from a tracking error, focus error, or ATIP sync signal.

Choi discloses determining whether the data recoding error occurs due to the defect of the optical disc using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal (see Figure 2, element S50 – note the clear use of the ATIP signal for the error detection; see also Figure 6, element S121 – note the clear use of the FE and TE signals in the error detection).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recording device as disclosed by Ohta with the defective area detecting method as disclosed by Choi, the motivation being to be able to tell whether a recording error occurred because of a buffer under-run or a defective area on the optical disc.

Regarding claim 23, Ohta and Choi disclose all of the limitations of claim 22 as discussed in the claim 22 rejection above. Choi further discloses that the controller determines the data recording error occurs when a value of the focus error signal or the tracking error signal exceeds a predetermined range, or errors occur in at least a predetermined number of ATIP sync signals to be periodically input (see Figure 2, elements S20, and S50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recording device as disclosed by Ohta with the defective area detecting method as disclosed by Choi, the motivation being to be able to tell whether a recording error occurred because of a buffer under-run or a defective area on the optical disc.

Regarding claim 24, Ohta and Choi disclose all of the limitations of claim 22 as discussed in the claim 22 rejection above. Choi further discloses that the controller divides the value of the focus error signal or the tracking error signal into a plurality of ranges, determines in which of the ranges the recording error belongs, and determines to what extent the constant angular velocity is to be lowered according to the magnitude of the value of the focus error signal or the tracking error signal (see column 3, line 35 thru column 4, line 5 – see especially column 4, lines 1-5 – note that the microcomputer lowers the speed 'adequately').

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recording device as disclosed by Ohta with the defective area detecting method as disclosed by Choi, the motivation being to be able to tell whether a recording error occurred because of a buffer under-run or a defective area on the optical disc.

Regarding claim 30, Ohta and Choi disclose all of the limitations of claim 26 as discussed in the claim 26 rejection above. Choi further discloses that the controller determines whether the data reproduction error occurs due to the defect of the optical disc using at least one of a focus error signal, a tracking error signal, and an ATIP sync signal which are output from the radio frequency signal processor (see Figure 2, element S50 – note the clear use of the ATIP signal for the error detection; see also Figure 1, elements 50 and 60).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recording device as disclosed by Ohta with the

defective area detecting method as disclosed by Choi, the motivation being to be able to tell whether a recording error occurred because of a buffer under-run or a defective area on the optical disc.

Regarding claim 31, Ohta and Choi disclose all of the limitations of claim 30 as discussed in the claim 30 rejection above. Choi further discloses that the controller determines the data recording error occurs when a value of the focus error signal or the tracking error signal exceeds a predetermined range, or errors occur in at least a predetermined number or more of ATIP sync signals to be periodically input (see Figure 2, elements S20, and S50).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recording device as disclosed by Ohta with the defective area detecting method as disclosed by Choi, the motivation being to be able to tell whether a recording error occurred because of a buffer under-run or a defective area on the optical disc.

Regarding claim 32, Ohta and Choi disclose all of the limitations of claim 30 as discussed in the claim 30 rejection above. Choi further discloses that the controller divides the value of the focus error signal or the tracking error signal into a plurality of ranges, determines in which of the ranges the recording error belongs, and determines to what extent the constant angular velocity is to be lowered according to the magnitude of the value of the focus error signal or the tracking error signal (see column 3, line 35 thru column 4, line 5 – see especially column 4, lines 1-5 – note that the microcomputer lowers the speed 'adequately').

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recording device as disclosed by Ohta with the defective area detecting method as disclosed by Choi, the motivation being to be able to tell whether a recording error occurred because of a buffer under-run or a defective area on the optical disc.

5. Claims 37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta (US Doc. No. 2002/0114243A1) in view of Applicant Admitted Prior Art (hereinafter AAPA).

Regarding claim 37, Ohta discloses all of the limitations of claim 2 as discussed in the claim 2 rejection above. Ohta fails to disclose switching to a constant linear velocity from the constant angular velocity.

AAPA discloses determining whether the data recording error occurs while the optical disc is rotated at the constant angular velocity that is lower than the adjusted constant angular velocity, and if the data recording error is determined to exist, rotating the optical disk at a constant linear velocity that is lower than the constant angular velocity that is lower than the adjusted constant angular velocity, and recording the data on the optical disc (see page 2, paragraphs 0006-0009).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the disc defect detection as disclosed by Ohta with the mode switching from a CAV rotation to a CLV rotation as disclosed by AAPA, the motivation being to complete the recording of data despite the defect on the optical disc.

Regarding claim 38, Ohta discloses all of the limitations of claim 10 as discussed in the claim 10 rejection above. Ohta fails to disclose switching to a constant linear velocity from the constant angular velocity.

AAPA discloses determining whether the data reproduction error occurs while the optical disc is rotated at the constant angular velocity that is lower than the adjusted constant angular velocity, and if the data recording error is determined to exist, rotating the optical disk at a constant linear velocity that is lower than the constant angular velocity that is lower than the adjusted constant angular velocity, and recording the data on the optical disc (see page 2, paragraphs 0006-0009).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the disc defect detection as disclosed by Ohta with the mode switching from a CAV rotation to a CLV rotation as disclosed by AAPA, the motivation being to complete the recording of data despite the defect on the optical disc.

Regarding claim 39, Ohta discloses all of the limitations of claim 20 as discussed in the claim 20 rejection above. Ohta fails to disclose switching to a constant linear velocity from the constant angular velocity.

AAPA discloses that if it is determined that the data recording error has occurred when the constant angular velocity is two steps lower than the predetermined constant angular velocity, the controller controls the motor driver to rotate the optical disc at a constant linear velocity that is lower than the two steps lower constant angular velocity (see page 2, paragraphs 0006-0009).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the disc defect detection as disclosed by Ohta with the mode switching from a CAV rotation to a CLV rotation as disclosed by AAPA, the motivation being to complete the recording of data despite the defect on the optical disc.

Regarding claim 40, Ohta discloses all of the limitations of claim 28 as discussed in the claim 28 rejection above. Ohta fails to disclose switching to a constant linear velocity from the constant angular velocity.

AAPA discloses that if it is determined that the data reproduction error has occurred when the constant angular velocity is two steps lower than the predetermined constant angular velocity, the controller controls the motor driver to rotate the optical disc at a constant linear velocity that is lower than the two steps lower constant angular velocity (see page 2, paragraphs 0006-0009).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the disc defect detection as disclosed by Ohta with the mode switching from a CAV rotation to a CLV rotation as disclosed by AAPA, the motivation being to complete the recording of data despite the defect on the optical disc.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADAM R. GIESY whose telephone number is (571)272-7555. The examiner can normally be reached on 8:00am- 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne R. Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ARG 2/10/2009

/Adam R. Giesy/
Examiner, Art Unit 2627

/Wayne Young/
Supervisory Patent Examiner, Art Unit 2627